USO DE CUARARIZANTES EN LA ATENCION DEL PARTO

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Se presenta la experiencia del autor con el uso de "Curare" en gestantes en trabajo de parto en el curso de 30 años.

El autor indica que la ventaja del uso del curare durante la inducción de la anestesia está en que se puede administrar fácilmente una anestesia ligera por inhalación en una paciente bien sedada, pudiéndose efectuar cualquier procedimiento quirúrgico obstétrico, incluyendo la aplicación del fórceps medio, en condiciones óptimas.

I thank you my dear colleagues for inviting me to your Congress. I am going to present to you 30 years of experience on sedation in labor and the use of curare. Most of what I tell you about curare was written about 15 years ago by me and a colleague of mine. All I have added is an increased number of cases that were done after the paper was published.

When I was being trained in Obstricis in 1939, the man who was my teacher said that ¼ of a grain of codeine or a ½ grain of phenobarbital was sufficient medication for a woman in labor. I worked at a city hospital, a free hospital, where the budget did not allow for much in the way of drugs. So after listening to women screaming their heads off for 1 or 2 or 3 days, I decided to embark upon a campaign to make it easier for them, if possible and, of course, without risk to the mother or the child. There was available to us in those days ether in oil ror paraldehyde in benzyl alcohol given rectally. Of course, morphine or pantopon were used privately, but in small doses because of the extremely depressive effect on the respiration of the newborn. Some men were using a large dose of barbiturates, especially Nembutal. This was given either by mouth or rectally along with scopolamine in large doses parenterally.

This made the patient drunk with sleep and many became unmanageable. I soon abandoned the use of paraldehyde and ether because they were of no great use.

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I went into private practice in September 1941 and shortly thereafter, the British discovered what we know today as Demerol. Of course, as you all know, the beauty of this drug is that its effect on the respiration of the newborn is a fraction of that of morphine. It was also about this time that I thought labor could be telescoped with safetly into a shorter period of time. I began inducing labor on patients near or post term and only to those who had favorable cervices. The drug of choice was Pitocin and I started with what today I would consider homeopathic doses. The dose was, gradually increased until the optimum concentration was found to be 1 ampoule per 500 cc of 5% glucose in water or normal saline. But just one word of advice at this point. If the patient has been in prodromal labor or her labor has been somewhat reduced in intensity by medication, it would be wiser to use only ½ an ampoule in 500 cc of fluid. Another word of caution, start your infusion at no more than 5 drops per minute, because it can always be increased, whereas if you were to get a tetanic contraction of the uterus it might make you want to discontinue the stimulation. And still another word of advice, do not let anybody other than yourself regulate the flow from the very beginning. There is always the tendency of the assistant or the nurse to try to be of help by starting the infusion and, by doing so, makin it go too fast. I have found this to be a mistake.

During the decade from 1941-1950 the sedation I used was Demerol, scopolamine and seconal. At delivery, all that was available to us at the time at the hospital where I worked was nitrous oxide and oxygen or ether. It was at that point that I decided to give curare a try. I used it in the decade from 1951-1960.

The modern clinical use of curare dates from 1932, when it was used by West for the treatment of tetanus and spastic disorders. The first trial for promoting muscular relaxation in general anesthesia was reported by Griffith and Johnson in 1942.

Studies by Harroun and Fisher showed that curare did not pass over the placental barrier in animals and humans in clinically discernible amounts. Mc Mann and Katzman et al, have clinically evaluated its worth as an addition to the available drugs for special uses in obstetrics with satisfaction. My experience with curare dates over the years 1951-1960 and comprises a series of 5,000 cases. Curare was first used with a view toward more readily effecting an obstetrical anesthesia in the second stage with the use of minimal amount of an inhalation agent. Too often, the time necessary for induction with nitrous oxide, the selected agent, was excessively long (of course with an adequate oxygen supply) or not feasible even with good preparation with first stage premedication. It was often necessary to resort to ether because of the

limitation of anesthetic agents in most obstetrical facilities. And, in as much as this has numerous disadvantages, primary among which is a sedative and narcotizing effect on the baby, curare was utilized just prior to anesthesia in an effort to make nitrous oxide suffice for delivery. Nitrous oxide and oxygen in a four to one ratio, with premedication and the addition of intravenous d-tubocurare in two cubic centimeter dosage effectively allowed for easy induction. There was prompt and effectual relaxation of the musculature along the birth canal as well, and instrumental delivery was greatly facilitated without the use of other anesthetic agents in concentrations sufficient to produce muscular relaxation usually associated with third plane anesthesia.

Ethylene and cyclopropane were only occasionally utilized at the discretion of the anesthesiologist in order to secure a more prompt induction where the patient manifested restlessness and excitability.

Tobocurare is not regarded as an anesthetic adjuvant for use during the induction of anesthesia, but in special situations its value in this regard is worthy of note. In this way a very light inhalation anesthesia is easily administered and, in a well sedated patient, any ordinary obstetrical operative procedure including midforceps delivery may be accomplished under optimal conditions.

There was no clinical evidence encountered to suggest that this dosage of curare compromised the maternal respiratory excursions so as to diminish the respiratory exchange and the arterial oxygen saturation sufficiently to adversely affect placental oxygen exchange.

The advantages of keeping obstetrical anesthesia as light as possible are widely appreciated. But it must be anesthesia; anything affording the patient less than anesthesia is unacceptable. In a sense, the lightest acceptable anesthesia anticipates one of the most important and formidable complication of the second and third stages, namely hemorrhage. In Gordon's study of case reports submitted to the Maternal Mortality Committee in Brooklyn, it was shown that while every case presented multiple considerations, anesthesia was prominently involved in a significant number of cases. Zweifach et al. and Zweifach and Hershey have demonstrated that shock complicated by deep anesthesia, especially ether, where blood loss is rapid, leads to a type of vascular response where fluid replacement is not as likely to reverse promptly the mechanism of stasis, extravasation and tissue anoxia. Dogs given ether and the barbiturates tolerated least blood loss, had the shortest survival time, the greatest experimental mortality, and the poorest response to transfusion. That inhalation anesthetics pass across the placenta and affect the newborn with a rela-

tionship to the depth and duration of anesthesia to which the parturient is subject is generally accepted. That curare facilitates the employment of an optimally light yet effectual anesthesia at delivery is thus of advantage in several respects.

It should be mentioned that the operator should be prepared to terminate the second stage before giving curare either with aid of fundal pressure or instruments since the reflex bearing down effort of the patient may be obtunded by the curare; sometimes it is surprising that with apparently good perineal relaxation, though, reflex voluntary efforts may persist.

Almost all patients in this series had median or mediolateral episiotomy and instrumental delivery. With the levator muscles and perineal musculature relaxed, the fibrous hymenal ring is relatively more prominent as an unyielding structure which interfeeres with traction and descent. If at first this alone is incised at the site which the operator anticipates will be the episiotomy site, descent is facilitated with traction, and the subsequent episiotomy will be significantly less extensive than if done with the presenting part higher in the pelvis. With a relaxed birth canal, traction is easier, tears fewer, blood loss and duration of anesthesia are both diminished.

Curare is valuable to the obstetrician during the third stage. It is important for the operator to have good visualization of the vagina up to the apex of a perineotomy, and infrequently a sulcus tear because of small vaginal dimensions may require good relaxation of the levator sling for visualization. It is most desirable that this be accomplished without subjecting the patient to a deep anesthesia which may carry with it a tendency of the uterus to relax and bleed. Good relaxation is as important in restoring the integrity of the vaginal canal as it is to an abdominal surgeon in exploring or closing an obese heavily muscled abdomen. It is reassuring to have this aid and at the same time be able to anticipate prompt effectual uterine contraction during the third stage. As previously noted, curare has no influence on uterine contraction, and its use is compatible with any of the usually administered oxytocics.

Spinal anesthesia has not been used by me for vaginal delivery, but it seems appropiate to note that the advantages usually claimed for this anesthesia in obstetric, namely relaxation and good uterine contractility are achieved by using curare and a light general anesthesia such as nitrous oxide. The patent advantage is that none of the complications of a conduction anesthesia are inherent in this method. It should be noted while referring to conduction anesthesia that pudendal block, especially with xylocaine, produces long and effectual relaxation of the perineum; for some reason though, this is usually regarded

as a separate modality, and is not used in association with a light general anesthesia.

Mild degrees of prematurity have not constituted an exception to the use of curare, but rather an indication for its use in that there was less resistance of the perineal musculature to the passage of the head. As with other babies, there was no discernible effect which could be ascribed to the drug. The greatest number of babies which were born within ten minutes of the administration of curare, have reacted normally in every respet as regard muscle tone and respiratory exchange. In practice, the anesthetic mask with oxygen flowing was placed on the patient before giving curare; this provides a margin of safety in the event respiratory excursions are diminished. The patient may be put into lithotomy position a few minutes after administering the curare, at which time the muscular relaxation will be an aid.

The total duration of the curare effect in the mother is about twenty minutes. If there is any change in the respiratory exchange rate due to this drug, no clinical effect was noted in either mother or newborn. It should be emphasized, however, that curare should not be given to a patient who is to be left unatended by the anesthetist for even the shortest time, since the relaxation it induces may be sufficient to cause the tongue to fall back and occlude the larynx; an airway, therefore, must be at hand. Curare has not been administered where there is diminished urinary output or where there is toxemia with albuminuria, since there may be some interference with its excretion through the urinary tract. Myasthenia would, of course, constitute an absolute contraindication to its use.

It should be noted that curare has not been used for breech deliveries in this series. Breech extraction was the method elected for delivery of breech presentations, and because deep ether anesthesia is employed in order to facilitate breech extraction by optimally relaxing the uterus, curare in this situation is superfluous.

In the decade of 1961-70, new anesthetics that were shorter acting were discovered. They were used with a great deal more oxygen and the margin of safety for mother and child was very great. In addition, caudal, epidural and saddleblock anesthesias came into their own. It is during these last 10-12-15 years that I have come to use the following method of sedation and I have had no reason to change, nor do I foresee any such possibility at this time. If the patient comes in active labor, and is about 4 centimeters dilated and has a well effaced cervix, she is given the following: 50 mg. Demerol, 1/100 of a grain of scopolamine and grains 1 ½ of Nembutal I. V. The first two in one

syringe and the last in another. Do not mix the two or your solution will become cloudy. At the same time she is given 50 mg. Demerol, 1/100 of a grain of scopolamine, and 10 mg. of vitamin K, all intra-muscularly. This is sufficient to maintain the patient for 1 to 1½ hours. If she is making progress after the hour or hour and a half, she receives the following: 50 mg. Demerol and ½cc Sparine (25 mg. per cc) all drawn up in a syringe and ½ given I. M. An hour later, if progress continues, the same thing is repeated. I never give more than 2 doses of Sparine. I think it has an adverse effect on the child. Usually by this time the patient is ready to be delivered. If during all this time progress is slow or stops, then I put an infusion on and stimulate the uterus. After this kind of sedation, for delivery the patient receives either Brevital or Surital by vein, or cyclopropane or halothane by inhalation. I have had practically no trouble with the baby with this regime and none with the mother. The total number of cases delivered during these past 30 years approximates 16,000.

The fetal loss due to sedation or curare was none. The fetal loss due to prematurity was within normal range. Term loss was from gross abnormalities incompatible with life. Maternal deaths were two. One due to hemorrhage, the other to uterine rupture.